restoring channel state information from feedback information from a user equipment based on the sampling points; and

selecting a precoder based on channel state information for a specific user equipment.

2. The method of claim **1**, further comprising:

coordinating a muting pattern between the base station and at least one other base station.

3. The method of claim **1**, wherein configuration of the plurality of reference signals includes mapping at least one antenna to at least one sparse channel state indicator resource element.

4. The method of claim **3**, wherein the mapping comprises selecting one mapping from a plurality of preconfigured mappings.

5. The method of claim **1**, further comprising:

providing to the user equipment at least one of an antenna configuration of the base station or an antenna polarization of the base station.

6. The method of claim **1**, wherein restoration of channel state information includes the base station reconstructing a channel estimate with compressed sensing processing, wherein a best precoder is designed by the base station.

7. The method of claim **1**, wherein selection of the precoder comprises the base station reconstructing a best precoder using compressed sensing processing.

8. A method, comprising:

computing an estimate of channel state information based on a limited number of samples at reference symbols; and

performing at least one of

explicitly feeding back the estimate to a base station;

implicitly feeding back a succinct set of parameters identified in compressed sensing processing; or

implicitly feeding back a succinct set of parameters extracted from a best precoder.

9. The method of claim **8**, further comprising:

observing sparse channel state information resource elements;

applying a sampling based on compressed sensing to the observed resource elements; and

obtaining channel state estimates from samples obtained by the compressed sensing.

10. The method of claim **9**, further comprising:

deriving a best precoder from the channel state estimates.

11. The method of claim **10**, wherein the best precoder comprises a conjugate of the channel state estimates.

12. The method of claim **9**, wherein a pseudo-random sampling pattern determines complex gains at which resource elements at which antennas are kept.

13. The method of claim **12**, wherein the pseudo-random sampling pattern is either configured by the base station or is derived by the user equipment from information provided by the base station.

14. An apparatus, comprising:

at least one processor; and

at least one memory including computer program code,

wherein the at least one memory and the computer program code are configured to, with the at least one processor, cause the apparatus at least to

configure, at a base station, a plurality of reference signals as sampling points for channel state information;

restore channel state information from feedback information from a user equipment based on the sampling points; and

select a precoder based on channel state information for a specific user equipment.

15. The apparatus of claim **14**, wherein, in configuration of the plurality of reference signals, the at least one memory and the computer program code are configured to, with the at least one processor, cause the apparatus at least to map at least one antenna to at least one sparse channel state indicator resource element.

16. The apparatus of claim **14**, wherein, in restoration of channel state information, the at least one memory and the computer program code are configured to, with the at least one processor, cause the apparatus at least to reconstruct a channel estimate with compressed sensing processing, wherein a best precoder is designed by the base station.

17. The apparatus of claim **14**, wherein, in selection of the precoder, the at least one memory and the computer program code are configured to, with the at least one processor, cause the apparatus at least to reconstruct a best precoder using compressed sensing processing.

18. An apparatus, comprising:

at least one processor; and

at least one memory including computer program code,

wherein the at least one memory and the computer program code are configured to, with the at least one processor, cause the apparatus at least to

computing an estimate of channel state information based on a limited number of samples at reference symbols; and

performing at least one of

explicitly feeding back the estimate to a base station;

implicitly feeding back a succinct set of parameters identified in compressed sensing processing; or

implicitly feeding back a succinct set of parameters extracted from a best precoder.

19. The apparatus of claim **18**, wherein the at least one memory and the computer program code are configured to, with the at least one processor, cause the apparatus at least to:

observe sparse channel state information resource elements;

apply a sampling based on compressed sensing to the observed resource elements; and

obtain channel state estimates from samples obtained by the compressed sensing.

20. The apparatus of claim **19**, wherein the at least one memory and the computer program code are configured to, with the at least one processor, cause the apparatus at least to derive a best precoder from the channel state estimates.

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